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Date: April 26, 2003

Joseph R. Keating

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Hideki MUTO et al.	Art Unit: 2817
Serial No.: 09/603,252	Examiner: J. Bettendorf
Filed: June 26, 2000	
Title: HIGH FREQUENCY SWITCHING COMPONENT	

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**REQUEST FOR RECONSIDERATION**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

In response to the Office Action dated June 26, 2002 and further to the filing of the Notice of Appeal on December 26, 2002, the Petition for Two Month Extension of Time, and the Request for Continued Examination concurrently filed herewith, please reconsider the above-identified application for the following reasons.

In the Office Action dated June 26, 2002, the Examiner rejected Claims 1-21 under 35 U.S.C. § 103(a) as being unpatentable over Erickson (U.S. Patent No. 5,054,114) in view of Chigodo et al. (U.S. Patent No. 5,473,293). Applicants respectfully traverse this rejection.

Applicants' claim 1 recites:

"A high frequency switching component for being connected to a transmission circuit, a reception circuit, and an antenna to be used for switching either to a state in which the transmission circuit is connected to the antenna, or a state in which the reception circuit is connected to the

antenna, the high frequency switching component comprising:  
a multilayer circuit board, on which there is formed a circuit including:  
a transmission circuit terminal to be connected to the transmission circuit;  
a reception circuit terminal to be connected to the reception circuit;  
an antenna terminal to be connected to the antenna;  
a ground terminal;  
**a first diode whose anode is connected to the transmission circuit terminal and the cathode thereof is connected to the antenna terminal;**  
**a second diode whose anode is connected to the reception circuit terminal and the cathode thereof is connected to the ground terminal;**  
a signal line for connecting the transmission circuit terminal, the reception circuit terminal, and the antenna terminal via the first diode; and  
**an inductor disposed between the signal line and the ground terminal which is effective to eliminate an electrostatic surge occurring on the signal line;**  
in which the transmission circuit terminal, the reception circuit terminal, the antenna terminal, the ground terminal, the first diode, and the second diode are disposed on a surface of the multilayer circuit board;  
and  
at least a part of the signal line is disposed inside the multilayer circuit board" (Emphasis Added).

Applicants' claim 5 includes similar recitations as highlighted in Claim 1 above.

The Examiner alleged that Erickson teaches all of the features and arrangement thereof of the elements recited in Applicant's claims 1-21 except the second diode having the recited orientation and the multilayer circuit board.

The Examiner further alleged that Chigodo et al. cures the deficiencies of Erickson since Chigodo et al. teaches a multilayer circuit board and the second diode having the recited orientation.

As described on page 5, line 14 through page 6, line 22 of the present application, the anode of the second diode D2 is connected to the intermediate point between the second transmission line SL2 and the fourth capacitor C4, and the cathode of the second diode D2 is connected to a ground terminal GND via the fifth capacitor C5 so that the cathode of the second diode D2 is grounded. When a positive voltage is

applied to the first control terminal T1, both of the first and second diodes D1 and D2 are switched ON, and the voltage is applied only to a circuit including the first and second diodes, and the voltage is blocked by the first to fifth capacitors. As a result, a signal is transmitted by the transmission circuit terminal Tx to the antenna terminal ANT, and the signal is prevented from being transmitted to the reception circuit terminal Rx since the second transmission line SL2 is caused to be in a resonant state by being grounded via the second diode D2 (whose cathode is grounded as described above), such that an extremely large impedance is present in the direction of the reception circuit terminal Rx from node A. When no voltage is applied to the control terminal T1 and a positive voltage is applied to the control terminal T2, both the first and second diodes D1 and D2 are switched OFF. As a result, a signal that is received at the antenna terminal ANT is transmitted to the reception circuit Rx and is not transmitted to the transmission circuit via the transmission circuit terminal Tx.

In direct contrast to Applicants' claimed invention described above, the second diode SW2 of Erickson has its anode connected to ground and its cathode connected to a signal line connected to the receiver circuit 14. This connection arrangement of the anode and cathode of the second diode SW2 are necessary for the proper functioning of the device of Erickson as described in Column 4, lines 23-51 of Erickson.

A diode by definition conducts in only one direction from the anode to the cathode. The arrangement of the second diode of Chigodo et al. is exactly opposite to that of the second diode of Erickson. Erickson teaches that the anode of the second diode SW2 is connected to ground and the cathode of the second diode SW2 is connected to the output port 28 of the RF network 24 of the signal line connected to the receiver circuit 14. In direct contrast to this, Chigodo et al. teaches that the cathode of the second diode D2 is connected to ground and the anode of the second diode D2 is connected to the signal line connected to the receiving circuit Rx.

If the arrangement, orientation and connection of the second diode SW2 of Erickson is changed as proposed by the Examiner based on the teaching of Chigodo et al., this would destroy the operability of the device of Erickson. The Examiner is reminded that it is impermissible within the framework of § 103 to pick and choose from

any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. In re Wesslau, 353 F.2d 238, 241, 147 USPQ 391 (CCPA 1965).

Furthermore, the arrangement of the anode and cathode of the second diode SW2 of Erickson is exactly opposite to that of Applicants' claimed invention. Thus, Erickson clearly teaches away from Applicants' claimed invention since Erickson teaches the exact opposite arrangement of the anode and cathode of the second diode of Applicants' claimed invention. Thus, Erickson cannot be relied upon in an obviousness rejection of Applicants' claims since it is error to find obviousness where references diverge and teach away from the invention at hand. W.L. Gore & Assoc. v. Garlock Inc., 721 F.2d 1540, 1550, 220 USPQ 303, 311 (Fed. Cir. 1983).

The Examiner alleged that it would have been obvious to use the arrangement and connection orientation of the second diode of Chigodo et al. with the device of Erickson because "the Erickson reference suggests any art-recognized switch would have been usable therewith (col. 3, lines 40-41) such as the orientation shown by Chigodo et al." This is not correct.

Column 3, lines 40-41 of Erickson disclose that "**other diode switches** can be utilized in the present circuit, but PIN diodes offer the advantage of switching with a DC bias current which is substantially less than the RF current being switched in the circuit" (emphasis added). This portion of Erickson merely describes that other devices may be used in place of the preferred PIN diode for the second diode SW2, but such a substitute device, and its anode and cathode, absolutely must be arranged and connected in the exact same manner as the second diode SW2 of Erickson in order for that device to function. This portion of Erickson clearly does NOT teach or suggest that any other orientation of the cathode and anode of the second diode of Erickson could be used, or that the orientation of the cathode and anode of the second diode of Erickson could be changed or arranged to be the exactly opposite to that which is shown and described in the entire disclosure of Erickson. As noted above, such a

change in the orientation of the cathode and anode of the second diode of Erickson would destroy the operability of the device.

Thus, the Examiner has clearly misconstrued the cited portion of Erickson and has ignored the entire disclosure of Erickson including how the anode and cathode of the second diode must be arranged and connected in order for the device of Erickson to function.

Prior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teachings. In re Sernaker, 217 USPQ 1 (Fed. Cir. 1983). The only thing to be derived from the combination of Erickson and Chigodo et al. proposed by the Examiner is the destruction of the operability of the device of Erickson.

For the foregoing reasons, Applicants respectfully submit that claims 1 and 5 are allowable. Claims 2-4 and 6-21 depend upon claims 1 and 5, respectively, and are therefore allowable for at least the reasons that claims 1 and 5 are allowable.

In view of the foregoing amendments and remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are respectfully solicited.

Serial No. 09/603,252  
April 28, 2003  
Page 6 of 6

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,



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